

# **Mobile Operating Systems - Android:**

## **Version Alpha to 5.X: Lollipop**

**Varsha Dubey**

**Sr. Android Developer**

**Support Foundation , Bhopal India**

**varsha0713@gmail.com**

### **Abstract**

The android operating system is basically an operating system for mobiles and is rapidly gaining market share, with dozens of smart phones and tablets either released or set to be released. It is mobile operating system that uses a modified version of the Linux kernel 2.6. Google developed Android as part of the Open Handset Alliance, a group of more than 30 mobile and technology companies working to open up the mobile handset environment. Android's development kit supports many of the standard packages used by Jetty, due to that fact and Jetty's modularity and lightweight foot print,

it was possible to port Jetty to it so that it will be able to run on the Android platform.

**Keywords:** **Android, Version history.**

### **INTRODUCTION**

Android is a software platform and operating system for mobile devices, based on the Linux kernel, and developed by Google and later the

**Open Handset Alliance.**

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It allows developers to write managed code in the Java language, controlling the device via Google developed Java libraries. Android is available as open source. Android is a freely downloadable open source software stack for mobile devices that includes an operating system, middleware and key applications based on Linux and Java. Google purchased the developer of Android in 2005, and Android was unveiled in 2007. Google released the Android code as open-source under the Apache License. Android has numerous developers writing applications (apps) all over the world. First of all the developers write their script in Java, and then download the apps from the third party sites or online stores. In February 2012, 450,000 apps were available for Android but the estimated number of downloads since December, 2011 was more than 10 billion. There are over 300 million Androids in use and over 850,000 devices activated every day. Android is the one of the most used mobile operating system with a market share of 48% and

Over 400,000 applications available in Google play store. Android apps have been installed over 10 billion times and cover a vast range of categories from games and entertainment to financial and business services. Android software development and the Google Play Market are relatively open and unrestricted. This offers both developers and users more flexibility and freedom, but also creates significant security challenges.



Open Handset Alliance logo

<b>Abbreviation</b>	OHA
<b>Formation</b>	2007
<b>Type</b>	Open mobile platform (Android) development organization
<b>Headquarters</b>	Mountain View, California, United States
<b>Region served</b>	Worldwide
<b>Membership</b>	Mobile operators, Software companies, Commercialization companies, Semiconductor companies, Handset manufacturers
<b>Parent organization</b>	Google
<b>Website</b>	<a href="http://www.openhandsetalliance.com">www.openhandsetalliance.com</a>

### Version history

Android is updating day by day since its release. These updates to the base operating system mainly focusing on fixing bugs as well as adding new features to provide more comfortable environment. Generally each new version of the Android operating system is developed under a code name based on a dessert item. All Version of Android: ---

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### Pre-commercial release versions

#### Alpha

There were at least two internal releases of the software inside Google and the OHA before the beta version was released in November 2007. For the milestones in internal releases, names of fictional robots were chosen, with various releases code-named "Astro Boy", "Bender" and "R2-D2".

Dan Morrill created some of the first mascot logos, but the current green Android logo was designed by Irina Blok. The project manager, Ryan Gibson, conceived the confectionary-themed naming scheme that has been used for the majority of the public releases, starting with Android 1.5 "Cupcake".

#### Beta

The beta was released on November 5, 2007, while the software development kit (SDK) was released on November 12, 2007. The November 5 date is popularly celebrated as Android's "birthday". Public beta versions of the SDK were released in the following order:

- November 12, 2007: m3-rc20a (milestone 3, release code 20a)
- November 16, 2007: m3-rc22a (milestone 3, release code 22a)
- December 14, 2007: m3-rc37a (milestone 3, release code 37a)
- February 13, 2008: m5-rc14 (milestone 5, release code 14)
- March 3, 2008: m5-rc15 (milestone 5, release code 15)
- August 18, 2008: 0.9
- September 23, 2008: 1.0-r1

#### Android 1.5, i.e. Cupcake



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Technically Android 1.5 wasn't the first version, but versions before that doesn't seem to have received any codenames. Stories were told that it was supposed to be version 1.2, but Google decided to make it a major revision and made it 1.5 instead, and gave it the dessert name "cupcake" as a codename, and that's when the "dessert series" got started.

A cupcake is a small cake, the size of an individual portion, baked in a cup-shaped mold, usually served with frosting on top.

### Android 1.6, i.e. Donut



Android V1.6, codename Donut, was released in September 2009. It fixed reboot errors in the OS as well as revamped photo and video features (i.e. camera interface) and better search integration. It also added support for larger screen size, and is the first version to offer Google turn-by-turn navigation feature.

Donut is usually defined as a small ring-shaped fried cake, is actually spelled doughnut, made out of rich, light dough and deep fried, then various sweet coating can be added. Please don't mistake this with bagel, which is baked, much denser, and usually salty.

### Android 2.0 / 2.1, i.e. Éclair



Android 2.0 was released in October 2009, with a bug fix version 2.0.1 in December 2009. Android 2.1 was released January of 2010. Most people consider them a single release. Added features include Bluetooth 2.1 support, flash and digital zoom for the camera, multi-touch support, live wallpapers, and more. Eclair the dessert is usually described as an oblong "cream puff", a baked pastry with cream filling and chocolate coating on top.

### Android 2.2, i.e. Froyo



The Android 2.2 platform introduces many new and exciting features for users and developers. This document provides a glimpse at some of the new user features.

- New User Features
- New Platform Technologies

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- New Developer Services

- New Developer APIs

It introduced speed improvements with JIT optimization and the Chrome V8 JavaScript engine, and added Wi-Fi hotspot tethering and Adobe Flash support

- Support for multiple cameras on the device, including a front-facing camera, if available
- Improved power management with a more active role. Enhanced support for native code development
- Audio, graphical, and input enhancements for game developers

### Android 2.3/ 2.4, i.e. Gingerbread



Gingerbread man on Google campus has been reported in early November 2010, and Gingerbread is officially released in December 2010. It introduced.....

- Updated user interface design with increased simplicity and speed
- Support for extra-large screen sizes
- Enhanced copy/paste functionality, allowing users to select a word by press- hold, copy, and paste
- New audio effects such as reverb, equalization, headphone virtualization, and bass boost
- New Download Manager,

### Android 3.0 / 3.1 / 3.2 i.e. Honeycomb



Honeycomb was released in February 2011. A tablet-oriented release which supports larger screen devices and introduces many new user interface features, and supports multicore processors and hardware acceleration for graphics. The Honeycomb SDK has been released and the first device featuring this version, the Motorola Xoom tablet, went on sale in February 2011. Google has chosen to withhold the development source code, which calls into question the "openness" of this Android release. Google claims this is done to eliminate manufacturers putting a tablet-specific OS on phones, much like the previous autumn, where tablet manufacturers put a non-tablet optimized phone OS (Android 2.x) on their Tablets resulting in bad user experiences.

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### Android 4.0 i.e Ice Cream Sandwich



Unveiled on October 19, 2011, Android 4.0 builds upon the significant changes made by the tablet-only release Android 3.0 "Honeycomb", in an effort to create a unified platform for both smart phones and tablets, whilst simplifying and modernizing the overall Android experience around a new set of human interface guidelines. As part of these efforts, Android 4.0 introduced a new visual appearance codenamed "Holo", which is built around a cleaner, minimalistic design, and a new default typeface named [Roboto](#).

Android 4.0 also introduced a number of other new features, including a refreshed home screen, near-field communication (NFC) support and the ability to "beam" content to another user using the technology, an updated web browser, a new contacts manager with social network integration, the ability to access the camera and control music playback from the screen, visual voicemail support, face recognition for device unlocking ("Face Unlock"), the ability to monitor and limit mobile data usage, and other internal improvements.

### Android 4.1/4.2/4.3: Jelly Bean



It is now certain that next version of Android OS will be named Jelly Bean On June 26th.

it offers new features for users and app developers, As an app developer, you should download the Android 4.3 system image and SDK platform from the SDK Manager as soon as possible. If you don't have a device running Android 4.3 on which to test your app,

use the Android 4.3 system image to test your app on the Android emulator. Then build your apps against the Android 4.3 platform to begin using the latest APIs.

As a user, you should do....

- Splendidly fast
- Google Now is brilliant
- Stellar keyboard
- Availability is limited
- Offline Maps need improvement

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### Android 4.4: Kit-kat



Android Kit Kat brings all of Android's most innovative, most beautiful, and most useful features to more devices everywhere. Android 4.4 is designed to run fast, smooth, and responsively on a much broader range of devices than ever before — including on millions of entry-level devices around the world that have as little as 512MB RAM.

It introduced.....

- New NFC capabilities through Host Card Emulation
- Printing framework
- Storage access framework
- Low-power sensors
- SMS provider
- Graphics
- Support for international Users
- Security enhancements

- Improved cryptographic algorithms
- SELinux (enforcing mode)

### Android 5.X: Lollipop



Android 5.0, Lollipop

This release is packed with new features for users and thousands of new APIs for developers. It extends Android even further, from phones, tablets, and wearable's, to TVs and cars.

Android 5.0 LOLLIPOP offers new features like.....

### User Interface

It is one of the highlights of the new Android OS that would create a consistent experience across all your devices. Offering a responsive UI design, Android 5.0 Lollipop "is designed to be flexible, to work on all your devices. it's offers

- Material design support
- Concurrent documents and activities in the recents screen
- Web View updates
- Screen capturing and sharing

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### Notifications

The notifications feature in Android Lollipop offers new ways to control when and how you receive messages - only get interrupted when you want to be. In Android 5.0, users can view and respond to messages directly from the lock screen. It's offers

- Lock screen notifications
- Notifications metadata

### Media

USB Audio support lets users plug USB microphones, speakers, and a myriad of other USB audio devices like amplifiers and mixers into their Android device. . it's offers

- Media playback control
- Audio playback
- Camera API for advanced camera capabilities
- Media browsing

### OK Google

Even if your screen is off, you can say "OK Google" on devices with digital signal processing support such as Nexus 6 and Nexus 9.

### 68+ languages:

With Android Lollipop comes support for 15 other languages including Basque, Bengali, Burmese, Chinese (Hong Kong), Galician, Icelandic, Kannada, Kyrgyz, Macedonian,

Malayalam, Marathi, Nepali, Sinhala, Tamil, Telugu.

### Graphics

- Support for OpenGL ES 3.1
- Android Extension Pack

### Storage

- Directory selection

### Wireless & Connectivity

- Multiple network connections
- Bluetooth Low Energy
- NFC enhancements

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